IN THE CLAIMS

Please cancel Claim 6 without prejudice or disclaimer of the subject matter therein.

Please amend Claims 1-4 and 8 as follows:

1. (Amended) A process for treating exhaust gases, the process comprising

a step of providing an aeration stirring tank having a stirring device comprising a motor, a shaft rotatably connected to the motor, and a blade attached to the shaft;

a step of introducing exhaust gases into an aqueous alkaline liquid in said aeration stirring tank while stirring the aqueous alkaline liquid; and

a step of further removing harmful gases from the gases discharged from the aeration stirring tank.

2. (Amended) The process according to Claim 1, wherein said step of further removing comprises a process of allowing the gases discharged from the aeration stirring tank to come into contact with an aqueous liquid.

3. (Amended) The process according to Claim 1, wherein said step of further removing comprises a step of introducing the gases discharged from the aeration stirring tank into a packed column filled with an agent.

4. (Amended) The process according to Claim 1, wherein said step of further removing comprises a step of allowing the gases discharged from the aeration stirring tank to come into contact with an aqueous liquid, and a step of introducing the gases discharged from the aeration stirring tank into a packed column filled with an agent.

8. (Amended) An apparatus for treating exhaust gases, the apparatus comprising

an aeration stirring tank for introducing exhaust gases into an aqueous alkaline liquid while stirring the aqueous alkaline liquid; and

at least one device selected from a gas-liquid contact device for allowing gases discharged from said aeration stirring device to come into contact with the aqueous liquid, and a packed column filled with an agent for passing gases discharged from said aeration stirring device; wherein

said aeration stirring tank has a stirring device comprising a motor, a shaft rotatably connected to the motor, and a blade attached to the shaft.

Please add new Claims 9-10 as follows:

9. (New) The process according to Claim 1, further comprising forming in the aeration stirring tank a foam comprising the exhaust gases and the aqueous alkaline liquid.

10. (New) The process according to Claim 9, further comprising stirring the foam with the blade.

IN THE ABSTRACT

Please replace the abstract with the attached abstract.

SUPPORT FOR THE AMENDMENT

This Amendment replaces the title; amends the specification; cancels 6; amends Claims 1-4 and 8; adds Claims 9-10; and replaces the Abstract. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claims 9-10 is found in the specification at least at page 10, lines 16-18 ("foam"; "stirring"). No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-5 and 7-10 will be pending in this application. Claims 1 and 8 are independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The Abstract is objected to because it does not identify the "posterior stage" or its relation to the gas-liquid contact device (7) or packed column (11). To obviate the objection, the Abstract is amended to more clearly identify the posterior stage. Thus, the objection to the abstract should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the objection.

The claims are objected to for various reasons. To obviate the objection, Claim 6 is canceled and Claims 1-4 and 8 are amended. Applicants respectfully traverse the assertion that the first step of Claim 1 is unnecessary and redundant. As discussed below, the stirring action produced by the blade recited in the first step of Claim 1 patentably distinguishes the present invention over the cited prior art. Thus, the objection to the claims should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the objection.

Claims 1-8 are rejected under 35 U.S.C. §103(a) over Applicants' description of the prior art set forth on page 1, line 9 *et seq.* in their specification ("APA") and pages 2-3 in the Gas Purification text ("Kohl") the combination taken together in view of Japan Pat. Doc. No. 62-125,827A ("JP-827"). Applicants respectfully traversed the rejection because the cited prior art fails to teach or suggest all the limitations of the claimed invention. In particular, the cited prior art fails to suggest the independent Claim 1 feature of introducing exhaust gases into an aqueous alkaline liquid in an aeration stirring tank while stirring the aqueous alkaline

liquid with a blade attached to a shaft rotatably connected to a motor, and the independent Claim 8 feature of an aeration stirring tank having a stirring device comprising a motor, a shaft rotatably connected to the motor, and a blade attached to the shaft.

To establish a *prima facie* case of obviousness, the prior art references when combined must teach or suggest all the claim limitations.

The present invention provide a process and an apparatus for treating semiconductor production exhaust gases, characterized in that a higher removal rate of harmful components from exhaust gases is maintained, blocking due to a solid product can be prevented, and the running cost is low. Specification at page 3, lines 12-17. In the present invention, a device capable of obtaining a higher harmful component removal performance is obtained by accelerating the renewal of a gas-liquid interface by finely dividing foam in a liquid by a stirring blade. Specification at page 12, lines 22-25. An aeration stirring tank, which includes the stirring blade as part of a stirring means for stirring an alkaline liquid, disperses a gas in the alkaline liquid by rotating the stirring blade at a high speed in the liquid. Specification at page 9, lines 20-25.

In contrast of the claimed invention, APA and Kohl fail to teach and/or render obvious Applicants' step of passing exhaust through an aeration stirring tank. Office Action at page 5, lines 11-12.

The Office Action cites JP-827 to remedy the deficiencies of APA and Kohl. For the Examiner's convenience, a copy of JP-827 and an English-language abstract of JP-827 are attached.

JP-827 discloses bringing BCl_3 into gas-liquid contact with a harm-removing liquid by means of a rotary type fine foam generator (i.e., rotary atomizer 8) immersed in a liquid of

water or an alkali aqueous solution. See, e.g., English-language abstract of JP-827 and JP-827 at Fig. 1.

However, the rotary atomizer of JP-827 does not include stirring blades and does not stir JP-827's liquid or foam. As a result, on the liquid side of the gas-liquid interface the laminar boundary layer film is thicker and the concentration gradient of harmful components is smaller in the unstirred foam of JP-827 than in the stirred foam resulting from the present invention. (Note definitions of "boundary layer flow", "boundary layer theory" and "film theory" in McGraw-Hill Dictionary of Scientific and Technical Terms, 5th edition, pages 259 and 754, copy attached.) In addition, on the gaseous side of the gas-liquid interface the laminar film is thicker and the concentration gradient of harmful components is smaller in the unstirred foam of JP-827 than in the stirred foam of the present invention because the shearing action of stirring blade of the present invention divides the foam and mixes the gas in the foam.

Because the aeration stirring tank of the present invention, which includes a stirring blade, provides a higher concentration gradient of harmful components at the gas-liquid interface, the present invention provides greater diffusion of harmful components from exhaust gases and greater absorption efficiency than does the unstirred system of JP-827. (Note that "diffusion" is defined as "the macroscopic motion of the components of a system of fluids that is driven by differences in concentration", McGraw-Hill Dictionary of Scientific and Technical Terms, 5th edition, page 570, copy attached.)

Because JP-827 is silent about the advantageous increase in absorption efficiency achieved by stirring, and is silent about stirring JP-827's liquid or foam with a stirring blade in an aeration stirring tank, JP-827 fails to suggest the aeration stirring tank of the present invention. Thus, JP-827 fails to remedy the deficiencies of APA and Kohl. As a result, the cited prior art fails to suggest the independent Claim 1 feature of introducing exhaust gases

into an aqueous alkaline liquid in an aeration stirring tank while stirring the aqueous alkaline liquid with a blade attached to a shaft rotatably connected to a motor, and the independent Claim 8 feature of an aeration stirring tank having a stirring device comprising a motor, a shaft rotatably connected to the motor, and a blade attached to the shaft.

Because the cited prior art fails to suggest all the limitations of the claimed invention, the cited prior art fails to have rendered obvious to the claimed invention. Therefore, the rejection under 35 U.S.C. §103(a) should be withdrawn. Applicants respectfully request reconsideration of withdrawal of the rejection.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Corwin Paul Umbach

Norman F. Oblon
Attorney of Record
Registration No. 24,618

Corwin P. Umbach, Ph.D.
Registration No. 40,211

Attachment:

Marked-up copy of amendments
Abstract
Japan Pat. Doc. No. 62-125,827A ("JP-827") and English-language abstract
McGraw-Hill Dictionary of Scientific and Technical Terms, 5th edition, pages 259, 570 and 754

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(703) 413-3000
Fax #: (703)413-2220
NFO/CPU/sej

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